ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

ORIGINAL
RECEIVED FILE

JUN 15 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the matter of	)	
	)	
Amendment of Parts 2, 90 of the	)	
Commission's Rules To Permit	)	
Increased Use of Frequencies In The	)	RM-7956
156-162 MHz Bands By Industrial	)	
and Land Transportation Private	)	
Land Mobile Radio Services	)	

REPLY OF
THE COUNCIL OF INDEPENDENT COMMUNICATION SUPPLIERS

Council of Independent
Communication Suppliers
1110 North Glebe Road
Suite 500
Arlington, Virginia 22201
(703) 528-5115

Of Counsel:

Marnie K. Sarver
Michael R. Wack
REED SMITH SHAW & McCLAY
1200 18th Street, N.W.
Washington, D.C. 20036

(202) 457-6100

June 15, 1992

No. of Copies rec'd 075
List A B C D E

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the matter of	)	
	)	
Amendment of Parts 2, 90 of the	)	
Commission's Rules To Permit	)	
Increased Use of Frequencies In The	)	RM-7956
156-162 MHz Bands By Industrial	)	
and Land Transportation Private	)	
Land Mobile Radio Services	)	

To the Commission:

REPLY OF
THE COUNCIL OF INDEPENDENT COMMUNICATION SUPPLIERS

I. INTRODUCTION

The Council of Independent Communication Suppliers ("CICS") hereby replies to comments filed by interested parties on its petition for rulemaking ("Petition") to permit increased use of frequencies in the 156-1562 MHz band by Industrial and Land Transportation Radio Service ("I/LT") eligibles. [1/] In response to these comments, CICS modifies its initial proposal and requests authority for I/LT operations on a primary basis on certain

---

1/ Council of Independent Communications Suppliers, Petition for Rule Making, RM-7956, filed March 6, 1992. The following parties filed comments on the petition: The Forest Industries Telecommunications ("FIT") and the Utilities Telecommunications Council ("UTC") (May 1, 1992); Associated Public-Safety Communications Officers, Inc. ("APCO") (May 4, 1992); Mobile Marine Radio, Inc. ("MMR"), American Commercial Lines, Inc. ("ACL") and the Ohio River Company ("ORC") (May 29, 1992).

existing maritime channels in the 156-162 MHz band, subject to the restrictions discussed hereafter. [2/]

In the Petition, CICS asked the Commission to expand authorized I/LT service operations on a primary basis within the 156-162 MHz band. No commenter seriously challenged CICS' demonstration that in many areas of the country the demand for maritime frequencies in the 156-162 band is minimal or nonexistent (and will never be otherwise), while I/LT operations in that band are severely congested. Indeed, the engineering statement submitted by MMR, the Petition's primary opponent, concedes that marine and I/LT users can share the targeted frequencies without interference under certain circumstances. [3/] Thus, the record confirms that the decisional issue relating to CICS' Petition is not whether but how to expand I/LT operations in the 156-162 MHz band.

CICS proposed to ensure that frequency sharing does not harm maritime operations by establishing within the 156-162 MHz band new primary channels that are 12.5 kHz offset from: (1) existing duplex frequency pairs allocated in Section 80.371 for maritime public correspondence; and (2) certain simplex frequencies allocated in Section 80.373 for port operations. The Petition also proposed detailed operational requirements that were designed

---

2/ The channels are identified at n.4, infra.

3/ MMR Comments, Attachment 1 at 4, 6 (calculation of mileage separation needed in order for I/LT services to share marine frequencies without causing harmful interference).

to ensure that I/LT operations on the new offset channels would not interfere with maritime operations. [4/]

CICS respects the views of commenters who are concerned that the proposed operating restrictions may not guarantee interference protection for maritime operations in all operating environments. In particular, CICS recognizes the merit of technical presentations indicating that reliance on channel offsets and 50-mile geographic separation between marine and I/LT stations may not, standing alone, establish an adequately "bright line" test that would allow the Commission to authorize I/LT operations expeditiously while assuring maritime users the level of interference protection they believe they are entitled to under the Commission's rules.

This implementation issue can be resolved in a straightforward manner. Specifically, CICS recommends that the Commission authorize I/LT operations on the targeted maritime frequencies upon submission of an engineering study demonstrating that such operations provide interference protection to licensed maritime stations. [5/] Part 80 contours, adjusted to bring them in line with land propagation at VHF frequencies, would serve as the standard for determining the requisite interference protection.

4/ Specifically, CICS proposed: (1) geographic separation between maritime and I/LT land stations, and (2) power limitations. See Petition at 2, 5-7.

5/ These targeted maritime frequencies are duplex public correspondence channels listed in Section 80.371 of the Commission's rules, see 47 C.F.R. § 80.371 (channels 24, 84, 25, 85, 26, 86, 27, 87, 28, 88), and simplex private communications channels listed in Section 80.373, see 47 C.F.R. § 80.373 (channels 05, 65, 66, 73, 14, 74, 77, 20).

I/LT applicants who meet this standard would be granted a license to operate on the targeted frequencies on a primary basis.

Proceeding in this manner will yield many public interest benefits. The Commission will not need to concern itself with creating new offset channels or establishing a new mileage-based interference standard. Maritime users will continue to operate freely, and without fear of interference, on the targeted channels. I/LT eligibles will receive relief from the congestion they are experiencing on the limited frequencies currently allocated to such eligibles in,the 156-162 band. The general public interest in efficient and effective spectrum utilization will be achieved. For these reasons, the Commission should grant CICS' modified petition for rulemaking.

II. DISCUSSION

Various parties raised policy and technical objections to the grant of CICS' Petition. Each of these two types of arguments will be addressed in turn.

A. Policy Considerations

The CICS Petition is grounded on two simple factual premises. First, the demand by I/LT eligibles for 150-162 MHz band systems greatly exceeds the supply of available spectrum. Second, maritime frequencies in that band are utilized minimally, if at all, in many areas of the country. The theory of the Petition is that an allocation system that produces a spectrum utilization disparity of this nature does not further the public interest.

No commenter submitted any evidence that casts doubt on the facts or theory underlying CICS' Petition, [6/] nor did any commenter even suggest that granting the Petition will fail to generate public interest benefits. To the contrary, commenters generally agree that authorizing expanded utilization of maritime channels by non-maritime systems, subject to appropriate conditions, is in theory a reasonable means of addressing spectrum demand/supply disparities in the 156-162 MHz band. See UTC Comments at 2 ("The proposal allows more efficient use of radio spectrum and is a simple method to alleviate a degree of spectrum congestion."); ORC Comments at 4 (". . .land mobile access to maritime mobile spectrum in certain geographic areas may be appropriate and desirable."); ACL Comments at 7 ("ACL does not have objection to the notion of land mobile users having access to the maritime mobile spectrum [in certain areas of the country]."); see also MMR Comments at 7 ("maritime communications service providers need to be open to technical developments that will

---

6/ All but two commenters acknowledge, at least impliedly, that I/LT users are experiencing significant congestion in the 156-162 MHz band. The existence of such overcrowding is too well established to require CICS to burden the Commission with a detailed rebuttal to the two commenters who cast aspersions on the adequacy of CICS' demonstration of the congestion phenomenon. See ORC Comments at 2-3; APCO Comments at 2. It is sufficient to note that neither of these commenters provided any evidence to the contrary, and that the Commission has noted on several occasions that private land mobile operations in the relevant band are severely congested, even in rural areas of the United States. See, e.g., "Private Land Mobile Telecommunications Requirements," Final Report of Planning Staff, FCC Private Radio Bureau (August 1983); Spectrum Efficiency in the Private Land Mobile Radio Bands In Use Prior To 1968, PR Docket No. 91-170, FCC 91-187, released July 2, 1992 (see especially at 2 & n. 30).

permit greater spectrum efficiency as well as a wider range of services to the public.").

Commenters opposing CICS' proposal argue either that it will unreasonably retard the growth of maritime services [7/] or that it is best considered in the Commission's on-going "re-farming" proceeding. [8/] Neither of these arguments withstands scrutiny.

Several factors ensure that authorizing expanded I/LT use of 156-162 MHz band frequencies will not impede growth of maritime services. First, vast stretches of the United States are land-locked. As noted by ACL, the demand for maritime service in land-locked areas is not great. ACL Comments at 5-6. Absent environmental events of cataclysmic proportions, these areas likely will remain land-locked for the foreseeable future, so the prospect of maritime service growth there is somewhat remote. I/LT operations on frequencies in these areas will not compromise such prospects.

Second, there is no evidence in the record, or elsewhere to CICS' knowledge, that I/LT sharing of maritime frequencies in the 156-162 MHz band will preclude future growth of maritime operations at locations where demand for maritime service already exists. Indeed, available evidence suggests otherwise. Even in areas where one might reasonably expect maritime frequencies in that band to be congested already, such as at major ports, the Commission has determined that adequate capacity exists to permit

---

7/ See e.g., MMR Comments at 6.

8/ See, e.g., APCO Comments at 2-3; FIT Comments at 2-3.

non-maritime systems to operate on maritime frequencies pursuant to waiver. [9/] Moreover, the Commission has taken steps to ensure that maritime operators and consumers of their services have ample capacity and several different service options to choose from to satisfy their needs, such as Automated Maritime Telecommunications Systems ("AMTS") [10/] and mobile satellite service. [11/] There are no similar alternative capacity or service options devoted to I/LT systems and eligibles. Against this background, it is reasonable to conclude that I/LT sharing of maritime frequencies presents no barrier to maritime service growth.

The argument that CICS' proposal prejudges or complicates the Commission's "refarming" initiative is completely a red herring. That proceeding pertains only to public land mobile spectrum below

---

9/ See e.g., FCC Radio Station License, File No. 9009248365, issued July 29, 1991 (City of Clarkstown Police Department). Clarkstown is located in New York State near the Port of New York.

10/ See Amendment of Parts 2 and 80 of the Commission's Rules Applicable to Automated Maritime Telecommunications Systems, 6 FCC Rcd 437 (1991) ("AMTS Order"). The Commission established this new service because, inter alia, consumers perceived it inconvenient to deal with a series of individual maritime coast stations. Id at 440. Thus, the Commission arguably has already determined, at least impliedly, that maritime operations on non-AMTS maritime frequencies are unlikely to experience significant future growth. Moreover, the Commission recently declined to make additional capacity available for AMTS due to evidence that demand for this maritime service has remained flat since 1989 and only a small percentage of total available AMTS service capacity is currently in use. See Amendment of Parts 0, 1, 2, and 95 of the Commission's Rules to Provide Interactive Video and Data Services, GEN Docket No. 91-2, RM-6196, FCC 92-22, released Feb. 13, 1992, at ¶¶ 11-12, 14-15.

11/ See Report and Order, GEN Docket Nos. 84-1231, 84-1233 and 84-1234, 2 FCC Rcd 1825 (1986); see also Notice of Proposed Rulemaking, GEN Docket No. 90-56, 5 FCC Rcd 1255 (1990).

470 MHz that is licensed in accordance with Part 90 rules. [12/] Since CICS' proposal deals exclusively with maritime frequencies licensed under Part 80 rules, Commission action on the proposal is totally unrelated to the refarming initiative. Moreover, that initiative seeks to determine whether and to what extent the Commission should impose new technology, channel spacing and licensing procedures in the PLMRS in order to improve spectrum efficiency. Nothing in CICS' proposal precludes the Commission from taking such action in either the land mobile or maritime services. [13/]

B. Technical Considerations

The CICS Petition asks the Commission to allow I/LT users to operate on newly created channels in the 156-162 MHz band that would be offset 12.5 kHz from existing maritime frequencies in that band. Under the proposal, the combination of channel

---

12/ See Spectrum Efficiency in the Private Land Mobile Radio Bands In Use Prior to 1968, Notice of Inquiry, PR Docket No. 91-170, FCC 91-187, released July 2, 1991.

13/ CICS' decision to withdraw its request for new offset channels renders moot the arguments of APCO and FIT that creating such channels will prejudge the refarming initiative or detract from that effort by creating an undue burden on the Commission's limited resources. See APCO Comments at 3; FIT Comments at 2-3. Moreover, contrary to FIT's assertion, see FIT Comments at 3, at no time has CICS told the Commission or anyone else that CICS speaks for or represents the interests of the forest products industry. As noted in the Petition, at n.1, CICS represents the interests of its member companies, who are entities engaged in serving the needs of private radio eligibles, particularly those located in small and rural communities throughout the United States. FIT's membership may find it odd that FIT is opposing an initiative that would further their goal of obtaining relief from congestion in the 156-162 MHz band, but this is a matter for FIT's members to resolve themselves.

offsets, geographic separation and power limitations were designed to prevent I/LT operations on the new channels from interfering with maritime operations. Commenters have submitted plausible evidence that the CICS proposal may not provide the intended level of interference protection. [14/] While CICS does not agree with every aspect of these technical showings, it has always been CICS' goal to ensure that I/LT operations on maritime frequencies in the 156-162 MHz band do not compromise maritime operations. Continuing to debate about the "correct" level of interference protection detracts from the far more important goals of maximizing efficient spectrum utilization and according I/LT users needed frequency congestion relief. Therefore, CICS accedes to using Part 80 maritime mobile rules, with certain minor modifications, as the standard for licensing I/LT operations on the targeted maritime frequencies.

This concession by CICS substantially simplifies its initial proposal. Specifically, it eliminates the need to establish new offset channels, power limitations or geographic separation requirements. Instead, I/LT system operators would apply for authority to operate on existing maritime channels. Each applicant would be required to submit an engineering study demonstrating that the protected and interference contours of both the proposed I/LT and existing maritime station, as calculated under Part 80 rules, do not overlap. Requiring the desired-to-undesired signal ratios to conform in all instances with Part 80

14/ See, e.g., MMR Comments at 5-7, Attachment 1.

standards will ensure that no interference is caused to maritime systems by I/LT users.

As discussed more fully in the attached engineering statement of Charles Ellis, an engineering consultant to CICS with extensive experience in the design and operation of two-way mobile communications systems, Part 80 provisions must be adjusted slightly to allow more precise calculations of the coverage and interference contours expected over land. For example, a minor correction must be made for terrain roughness. A separate minor adjustment must be made to account for differences between the 30 foot above ground receive antennas standard in the maritime service and the 6 foot above ground standard common to the land mobile services. Pursuant to this methodology, the protected contours for the maritime and I/LT stations will be 19.25 dbu and 28.25 dbu, respectively, and the respective interfering contours will be 16.25 and 7.25 dbu. Directional antennas would be permitted, and every advantage given for terrain obstructions in Part 80 would be allowed.

This method of allocation will promote efficient use of currently underutilized maritime channels in the 156-162 MHz band with maximum service to the public and no disruption to maritime operations. Reliance on a protective contour approach, however, makes effective frequency coordination critically important. For this reason, CICS reiterates its request that I/LT coordination be managed by SIRSA consistent with current 420/800/900 MHz frequency coordination procedures. This adheres to the established Commission practice of grouping certain radio service eligibles

into a single I/LT category, [15/] and designating SIRSA as frequency coordinator. [16/] Moreover, designating a single coordinator simplifies the licensing process for I/LT applicants, lessens administrative burdens on the Commission and increases the prospect that coordination will be conducted accurately, thereby minimizing the possibility of harmful interference to maritime operations.

III. CONCLUSION

As discussed in this reply, authorizing I/LT operations on a primary basis in the 156-162 MHz band, subject to appropriate requirements, will relieve frequency congestion currently

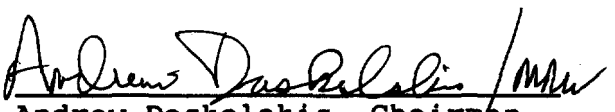
---

15/ The eligibles for this pool include the Power, Petroleum, Forest Products, Motion Picture, Relay Press, Special Industrial, Manufacturers, Telephone Maintenance, Motor Carrier, Railroad, Taxicab and Automobile Emergency Radio Services.

16/ See, e.g., Amendment of Part 90, PR Docket No. 83-737, 51 FR 14993 (Apr. 22, 1986) (800 MHz I/LT pool); Amendment of Part 90, PR Docket No. 86-163, 2 FCC Rcd 825 (1987) (420 MHz I/LT pool); 900 MHz Reserve Band Allocations, Gen. Docket No. 84-1233, 61 RR 2d 165, 187 (1986) (900 MHz I//LT pool).

experienced by I/LT eligibles without harming maritime operations. Therefore, the Commission should grant CICS' petition for rulemaking.

Respectfully submitted,



Andrew Daskalakis, Chairman
Council of Independent
Communication Suppliers
1110 North Glebe Road
Suite 500
Arlington, Virginia 22201
(703) 528-5115

Of Counsel:

Marnie K. Sarver
Michael R. Wack
REED SMITH SHAW & McCLAY
1200 18th Street, N.W.
Washington, D.C. 20036

(202) 457-6100

June 15, 1992

ATTACHMENT

(Engineering Statement of Charles Ellis)

Engineering Statement in Support of Channel Usage by the VHF Maritime Mobile Radio Service and the Private Land Mobile Radio Service

Introduction

The Council of Independent Communication Suppliers ("CICS") wishes to share channels in the 156 to 162 MHz VHF Maritime Mobile Radio Service ("MMRS") with the Private Land Mobile Radio Service ("PLMRS"). At present, the use of these channels is allowed only in special, individually considered situations. CICS wishes to develop an allocation plan based on the present FCC Part 80 rules that would allow simple and straightforward processing of applications for shared use of these channels.

Present Maritime Mobile Radio Service Allocation Plan

The present rules consider 17 dbu to be the required signal strength contour for adequate coverage and the 5 dbu contour to be the interfering contour (FCC Rules and Regulations Section 80.753 and Section 80.773). These contours are calculated according to the propagation curves provided in FCC Rules Part 80.767 titled "Propagation Curves for the VHF Maritime Mobile Radio Service". The channels are allotted on a showing of non-overlap of the desired (17dbu) to undesired (5 dbu) contours of both the proposed and existing co-channel stations. Allowances are made for terrain blockage. There is no protection for adjacent channel stations. CICS wishes to keep this basic allocation method with some modifications.

Proposed Maritime Mobile Radio Service Allocation Plan for Shared Services

The curves provided in Part 80.767 are designed for seawater, fresh water or land (smooth earth). The areas between the existing marine facility and the proposed PLMRS facility will not be large expanses of sea water, fresh water, or smooth earth. Therefore, CICS suggests a correction to these curves to bring the calculations more in line with land propagation at VHF frequencies.

The Commission has accepted 50 meters as the general terrain roughness in virtually all land based services (i.e. TV, FM, Cellular, LMRS) in the US. Using the Terrain Roughness Correction Curves from Figure 10e, Part 73.669 of the FCC Rules and Regulations and interpolating for a frequency of 159 MHz shows a reduction of 2.25 db between field strengths over land with a general terrain roughness of 50 meters and field strengths determined for smooth earth propagation. CICS feels that the use of a correction factor is required to better predict the coverage and interference contours expected over land. Therefore, using Part 80 curves for allocation over land, the desired coverage contour will be the 19.25 dbu contour and the undesired interfering contour will be the 7.25 dbu contour.

Another correction is necessary in order to develop standards for the PLMRS use of the MMRS frequencies. Using detailed height above average terrain ("HAAT") information (no more than 10 degrees apart) on radials covering the area between the maritime station and the PLMRS station, the 19.25 dbu protected contours would be calculated for the maritime station. The same Part 80 curves would then be used to calculate the coverage contour for the PLMRS base station. However, rather than the 19.25 dbu contour as the coverage contour, the 28.25 dbu contour (19.25 dbu + 9 db) would be the desired coverage contour for the PLMRS station. The 9 db factor has been universally accepted as the correction factor required to correct field strength curves designed for receive antennas at 30 feet above ground to receive antennas located 6 feet above ground as in mobile services. The Part 80 coverage curves were designed for 30 foot receive antennas, therefore the correction factor is required.

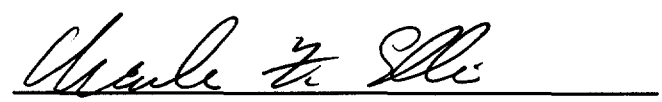
Similarly, the 7.25 dbu interfering contour for the land mobile station would be calculated. This contour protects the maritime stations service contour which is based on 30 feet. The maritime station's interfering contour, however, would be the 16.25 dbu contour (7.25dbu + 9 db). This would protect the PLMRS service contour. In this manner, both service contours are protected normally for their type of service (allowing, in general, for the 2.25 db correction for terrain roughness of curves designed for smooth earth propagation).

Note that this type of allocation system protects the MMRS according to its usual rules of allocation and the land mobile station according to its rules of allocation. Every advantage given for terrain obstructions in Part 80 would be allowed. These terrain obstruction contour reductions would be calculated based on the Part 80.769 shadow loss methods. Directional antennas would be permitted.

For allocations without waiver, the PLMRS station's interfering contour would not overlap the maritime station's service contour and the maritime station's interfering contour would not overlap the PLMRS's service contour. CICS expects that applicants will be allowed to make reasonable arguments for waivers on a case by case basis as is now allowed for both maritime and land services. In this manner, the public will be maximally served and standards of both the Maritime Mobile Radio Service and the Private Land Mobile Radio Service will be maintained.

Conclusions

The maritime to maritime protected and interfering contours will remain unchanged. For allocation of PLMRS stations, the protected contour of the maritime station will be the 19.25 dbu contour as taken from the Part 80 Charts. The protected contour of the PLMRS station will be the 28.25 dbu contour. The interfering contour of the MMRS station will be the 16.25 dbu contour. The interfering contour of the LMRS station will be the 7.25 dbu contour. All these contours are determined from the Part 80 chart "Propagation Curves for the VHF Maritime Mobile Radio Service". Full advantage would be taken by applicants of terrain features as outlined in Part 80.769 of the Rules. Directional antennas would be allowed. The Council of Independent Communication Suppliers believes that this method of allocation would allow use of these channels in areas where they are underutilized giving maximum service to the public with no disruption to the existing Maritime Mobile Radio Service.

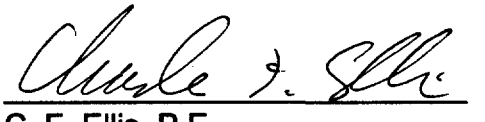


Charles F. Ellis, P.E.

AFFIDAVIT AND QUALIFICATIONS OF
C. F. ELLIS

State of Louisiana)
Lafayette)
Parish of Lafayette)

Charles F. Ellis affirms that he is a consulting radio and electronics engineer; that he is a professional engineer registered in the State of Louisiana: that the foregoing report was prepared by him or under his direction; and that the statements contained therein are true to his own personal knowledge except those stated to be on information and belief, and as to those statements, he verily believes them to be true.



C. F. Ellis, P.E.
Affiant
June 12, 1992

CERTIFICATE OF SERVICE

I, Courtenay P. Adams, hereby certify that a copy of the foregoing "Reply of The Council of Independent Communication Suppliers" was sent by first class U.S. mail, postage prepaid, this 15th day of June 1992, to the following:

Ralph A. Haller, Chief
Private Radio Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Beverly G. Baker, Deputy Chief
Private Radio Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

Robert H. McNamara, Chief
Special Services Division
Private Radio Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5322
Washington, D.C. 20554

George R. Dillon, Chief
Aviation and Marine Branch
Private Radio Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5114
Washington, D.C. 20554

Martin W. Bercovici, Esquire.
Keller and Heckman
1001 G. Street, N.W.
Suite 500 West
Washington, D.C. 20001

David L. Hill, Esquire
Audrey P. Rasmussen, Esquire
O'Connor & Hannan
1919 Pennsylvania Avenue, N.W., Suite 800
Washington, D.C. 20006

Michael A. Khouri, Senior Vice President
General Counsel, Secretary
American Commercial Lines, Inc.
P.O. Box 610
Jeffersonville, Indiana 47130-0610

John D. Lane, Esquire
Robert M. Gurss, Esquire
Wilkes, Artis, Hedrick & Lane, Chartered
1666 K Street, N.W.
Washington, D.C. 20006
Counsel to Associated Public-Safety Communications Officers

Jeffrey L. Sheldon, Esquire
Mara J. Primosch, Esquire
Utilities Telecommunications Council
1140 Connecticut Avenue, N.W., Suite 1140
Washington, D.C. 20036

George Petrutsas, Esquire
Fletcher, Heald & Hildreth
1225 Connecticut Avenue, N.W., Suite 400
Washington, D.C. 20036
Counsel to Forest Industries Telecommunications

Courtenay P. Adams